

Appl. No.: 10/732,942
Amdt. dated: 6/24/2005
Reply to Office Action of March 10, 2005

REMARKS

Upon entry of the instant amendment, claims 1-9 are pending. Claim 1 has been amended to more particularly point out the applicant's invention. It is respectfully submitted that upon entry of the instant amendment and consideration of the remarks below that the application is in condition for allowance.

CLAIM REJECTIONS - 35 U.S.C. § 103

Claims 1-8 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kotlow, et al., U.S. Patent No. 6,747,371, in view of Carrier, et al., U.S. Patent No. 5,937,622. It is respectfully submitted that the claims, as amended, recite subject matter not disclosed or suggested by either the Kotlow, et al. or Carrier, et al. patents, either singly or in combination. In particular, the Kotlow, et al. patent discloses a system which is based on the amount of *discharge* of the back-up battery. Referring to Figs. 1, 2, and 3 of the Kotlow, et al. patent, it is clear that the back-up battery is connected to the back-up battery charger, as well as to the electronic communication equipment. Various modes of operation are considered, the most important of which is when the engine is not running and the back-up battery is used to power the load. In order to determine the level of charge of the back-up battery that is permanently connected to the load, the system measures the amount of discharge or current drawn from the back-up battery and is, thus, able to determine the state of charge of the battery irrespective of whether the back-up battery is under load or not. (*"Specifically, in accordance with the technique of the invention, the monitoring of the electronic equipment back-up battery open circuit voltage and charging current, in consort with consideration of the total current or charge drawn from the back-up battery since its last charge, can enable efficient use of the main vehicle battery and the electronic equipment back-up battery. This result, moreover, can be attained irrespective of whether the equipment engine that charges the vehicle main battery is or is not running and the back-up battery voltage is or not under load."*; Kotlow, et al. patent, Column 2, lines 32-41).

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Thus, the system disclosed in the Kotlow, et al. patent simply measures the amount of current that has been discharged by the back-up battery and recharges the battery as a function of the amount of current discharged.

The battery charger system, in accordance with the present invention, has nothing to do with the discharge characteristics of the battery but rather monitors the charging current to the battery. In particular, the claims, as amended, now recite that the battery indicator is for a lithium ion battery and provides an indication when the level of charging current is less than the current value when the charger is in a constant current mode. This charging indication is used to represent a near full state of charge.

The system recited in the claims at issue is much simpler than the system disclosed in Kotlow as it is not required, nor would it be possible, to measure the discharge of the battery. In the system recited in the claims at issue, only the charging current needs to be monitored. No sensing of the discharge of the battery is required.

Paragraph 2 of the Detailed Action relies upon column 5, lines 18-27 of the Kotlow, et al. patent, hereby repeated for the convenience of the Examiner.

"When it is determined by such monitoring that the back-up battery voltage drops below a predetermined voltage relative to the existing discharge current, the back-up battery chargers then is re-enabled (switch S closed). When the monitored battery back-up charge current drops below a predetermined level indicative of the battery reaching full or near full charge and without starting to produce a discharge current, the back-up battery CHarger¹ is, again, disabled and the further charging terminated. Once more, the above steps are repeated as required."

The predetermined value referred to in the above passage relates to a value determined by the amount of current discharged by the back-up battery. As mentioned above, the system, as recited in the claims at issue, has nothing to do with the discharge current and does not monitor

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the discharge current at all. It is based solely on the charging characteristics of a lithium ion battery. Moreover, the system disclosed in the Kotlow, et al. patent requires voltage sensing. No such voltage sensing is required by the system recited in the claims at issue.

The Carrier patent was cited for disclosing an indicator (LED Display 102) for displaying battery charged levels of 20 percent, 40 percent, 60 percent, 80 percent, and 100%. The Carrier patent does not, otherwise, disclose a system for monitoring the charge current of the lithium ion battery and providing a near full charged indication signal solely as a function of the charge current being less than the value of the current of a lithium ion battery in a constant current mode. For these reasons and for the above reasons, the Examiner is respectfully requested to reconsider and withdraw this rejection.

Respectfully submitted,

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